# Introduction

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The primary purpose of this study is to clarify the characteristics of the supplier system of the motorcycle industry in China based on observations from the 1980s until 2004, and to identify the reasons for its formation and transformation through a comparative analysis vis-à-vis Japan. The supplier system is an institution established by a core firm (in this context, a manufacturer of final products, hereafter "maker") along with its parts suppliers (hereafter "suppliers") for the procurement of parts. The final goal of the study is, through the above analysis, to explore the distinctive features of China's industrial development process during the reform period and to understand the economic rationale behind it in view of the interaction between the capability upgrading of Chinese firms and the changing market environment in China.

Specifically in this study, the supplier system is divided into two forms: the "united-development type" (hereafter, "united type"), in which, under the leadership of the maker, the members of the system try to upgrade their capabilities by sharing risks among themselves, while moving forward to achieve the common objectives, and the "isolated-development type" (hereafter, "isolated type"), in which each member individually strives to achieve development, with the maker and suppliers emphasizing their own risk management. The study finds that the system of Japanese firms is closer to the former, while that of Chinese firms to the latter, and identifies the reason why this is true in China. An assumption is presented, and demonstrated to be true, that the industrial development process in China in its transition to a market-economy system embraced more factors driving the country's supplier system to an isolated type than those driving it to a united type.

## I. Past Literature on Interfirm Relations and Supplier Systems

Interfirm relations have been the subject of many explorations, and various theoretical

frameworks have been produced. The major analytical approaches include: (1) the transaction costs approach (Coase 1937, Williamson 1979); (2) the competence/knowledge-based approach, which emphasizes the value or rent accrued by transactions (Penrose 1959, Richardson 1972, Demsetz 1988); (3) the cluster approach, which emphasizes agglomeration advantage (Piore and Sable 1984, Porter 1990, Schmitz 1995); (4) the social capital/network approach, which underscores the importance of social values such as trust (Coleman 1988, Sako 1992, Humphrey and Schmitz 1998); (5) value chain approach, which stresses global linkages (Gereffi 1994, Borrus, Ernst, and Haggard 2000, Kenney and Florida 2004); (6) the product life cycle/architecture approach, which focuses on the relationship between technology and organization (Utterback and Abernathy 1975, Baldwin and Clark 1997); and (7) the practical approach, which discusses methodologies for nurturing and managing suppliers (Leenders 1965, Krause 1997). Researchers have utilized these theories as means to understand: (a) the type and characteristics of the interfirm organization (typical issues are the boundaries of firm and governance mechanisms), (b) the competitiveness and advantage of the organization, (c) the stages of organizational development, and (d) practical organizational management methods. Some scholars, such as those using the comparative institutional analysis approach (Aoki, Kim, and Okuno-Fujiwara 1997), view interfirm organization as one of the complementary factors making up a country's economic system, and perceive the mode of the interfirm organization as embodying the characteristics of the market system of the country or the mode of formation of the society.

The supplier system, which forms a part of interfirm relations, is a business organization formed by independent firms in order to create competitive advantage as a whole system. Previous studies have been mostly empirical, focusing on particular industries using the approaches outlined above, but theoretical refinements have also been made via case studies. Many of these studies have centered on cases involving machinery-related industries of developed economies, and in particular automobile and electronics industries, whose products are composed of an enormous number of parts and materials. In particular regarding Japan, where such industries have exhibited strong competitiveness, and on small and medium-sized subcontracting firms, which have accumulated in the decades since World War II, excellent studies have been produced (Minato 1987; Sako 1992; Nishiguchi 1994; Hashimoto 1996; Fujimoto 1998, 1999; Takeishi 2001). Asanuma's works (1989, 1992, 1997; Asanuma and Kikutani 1992), which this study refers to heavily, are some of the most important of these studies.

Studies on interfirm relations in developing countries also have increased since the 1990s. Studies on relations led and formed by indigenously capitalized makers have been for the most part confined to the cases of the newly industrializing economies (NIEs) such as the Republic of Korea and Taiwan, where indigenous makers have developed significantly (Mizuno and Yahata 1992; Kawakami 1998; Yun 1999; Poon 2002; Humphreys, Li, and Chan 2004; Sonobe and Ōtsuka 2004), and include studies that put emphasis on the networking capabilities associated with individuals of Chinese ethnic background (Hamilton 1996; Chen and Ku 2004). With regard to other

developing economies, most studies have centered on the relationship between foreign-capitalized makers and indigenous suppliers, focusing on their technological and managerial upgrading via foreign support (Jansson 1982; Yahata and Mizuno 1988, Shimane 1999), or have discussed how indigenous suppliers are integrated into the value chains formed under the leadership of foreign firms (Gereffi 1994; Hatch and Yamamura 1996; Kaplinsky 2000).

Studies on interfirm organizations in China are also increasing. Most of them concentrate on analyzing the effect of the reform of public enterprises (Murakami, Liu, and Otsuka 1999). Among them, the most important center on interfirm relations within large state-owned business groups, which have been transformed to a large extent by governmental initiatives (Marukawa 1995, 1999; Keister 2000; Sutherland 2003). Many previous case studies analyzing the supplier system in detail have focused on the automobile industry (Li 1997; Tanaka 2001; Marukawa 2003a, b). However, with the exception of the case of small trucks (Tajima 1996), since the leading players in the industry are for the most part foreign-capitalized makers or huge state-owned makers which are subject to governmental intervention, the organization of the industry is far from representative of the rapidly increasing part of the Chinese market nurtured spontaneously through competition. Moreover, since the industry lacks international competitiveness, its supplier system does not seem to have any unique advantages.

After the publications of Ohara and Lin (1999) and Ohara (2001), which form the starting point for this study, in Japan, interfirm relations in China's motorcycle industry have drawn attention from some business scholars who rely upon the architecture approach (Ge and Fujimoto 2005; Ōtahara and Sugiyama 2005).

## II. The Significance of This Study

This study focuses on the motorcycle industry, where Chinese makers, who are superior to foreign-capitalized makers in terms of the ability to adapt to China's domestic market, have played the central roles in its rapid development. This industry has international competitiveness in low-price and standardized products, as exemplified by the fact that Chinese makers have expanded their exports rapidly since 2000. Because of this, this study will allow for a better grasp and understanding of the characteristics of interfirm organization formed via the process of their adaptation to the Chinese market environment, and the advantages in terms of international competitiveness accrued by organizations.

By conducting a dynamic analysis with inter-temporal comparisons, this study aims to deepen understanding of the process of China's industrial development. Under the assumption that the upgrading of manufacturing capabilities—production capabilities using imported technologies, investment capabilities to expand capacity utilizing absorbed knowledge, and innovation capabilities to create brand-new products or processes (Amsden 2001, p. 4)—is one of the main engines of industrial development, the study examines how the interfirm organization of the division of

labor supports the upgrading of manufacturing capabilities, or how organizations change in accordance with their enhancement. This is based on the assumption that "the institutional framework will shape the direction of the acquisition of knowledge and skills and . . . that direction will be the decisive factor for the long-run development of that society." (North 1990, p. 78)

This study, at the same time, stresses the competitive environment surrounding the industry. The competitive environment includes factors related to the demand and distribution of products and those influencing the way that firms carry out transactions. This study analyzes how firms have upgraded their own capabilities and organization in response to changes in the Chinese market, in terms of both supply and demand.

In terms of theoretical position, this study adopts a competence/knowledge-based approach that stresses the accrual of value or rent by transactions. This approach is considered to be more appropriate than the transaction cost approach for understanding the dynamic aspects of the development process of late-industrializing economies.

With regard to the classification of governance mechanisms among firms, market and intermediate organizations (Imai and Itami 1984), this study focuses on the intermediate organization and its various forms. With spot market transactions at one end and the perfectly integrated firm at the other, real-life transactions are conducted through various kinds of organizations, constituting a spectrum between the extremes (Richardson 1972). The case of China's motorcycle industry in the 1990s demonstrated the transformation process of a united-type organization, which was close in form to an integrated firm, into an isolated-type one, which was closer to a spot market transaction.

This study attempts to understand the factors that make the Chinese market and its industrial development process distinctive. Similar to a comparative institutional analysis approach that examines the diversity of market economy systems, it adopts a holistic approach under which important factors that make up the whole society concerning the industry are analyzed. The study does not aim to propose a new general model of interfirm relations or industrial development process that is applicable regardless of the country or industry. One general model, for example, proposes that industries in the East Asian economies upgrade themselves by moving from a period of quantitative expansion to one of qualitative enhancement (Sonobe and Ōtsuka 2004, pp. 40–47). This statement may be correct and the results of this study also support it. However, it is very likely that the timing of the industries' entry into the period of qualitative enhancement or the contents of the period differ depending on the country or industry. For example, as shown by the following chapters, major Chinese motorcycle makers, in the period of quantitative expansion, displayed a stronger impetus toward scale expansion than their counterparts in Japan and other latecomers, whereas in the period of qualitative enhancement, they seem to have been more stagnant in the upgrading of product quality and novelty than, at least, the Japanese firms. Moreover, there is great diversity in the way the division of labor is organized in the background of the different competition patterns between China and

Japan. This study aims to explore the factors that brought about such features to China.

## III. Factors Characterizing China's Development Process

This study recognizes the features of interfirm organization and the industrial development process in China as being based on the factors found in the following two aspects specific to China.

### 1. A Huge and Immature Low-End Market

The nature of the market strongly affects the pattern of industrial development. However, the vast majority of previous studies have concentrated on the supply side aspects, though there are some notable exceptions.[1] In studies looking at NIEs, in particular, attention is typically paid to industrial upgrading that is dependent upon the markets of developed countries, in particular the United States. In these studies, as represented by the concept of "export-led building of technological capability" (Hobday 1995), attention is drawn to how indigenous firms with immature capabilities upgrade their technological and management level to the standard required by the market of developed economies. During the 1990s, in particular, the electronics and IT industry became a very important study subject, and the perspectives of value chain, which stress the global linkages between the markets of advanced countries and the production resources of the developing countries, prevailed in industrial studies.

In contrast, this study focuses upon factors that comprise the domestic market. Specifically, attention is paid to the large size of the demand that allows the growth of numerous and homogeneous firms; tolerant users accepting low-quality motorcycles; the government's inability to secure safety, environment, and intellectual property rights; and the delay in the formation of product distribution networks. It also emphasizes the immaturity of China's economic institutions in terms of securing the trustworthiness of market transactions, leading to the development of opportunism-led management. This is also a point that demonstrates an important aspect of the market in a broad sense, and which has not been sufficiently emphasized in the past literature.

China's isolated-type supplier system in the second half of the 1990s was basically suited to the rapid expansion of the supply of low-quality products required by low-end markets at a low price. The stagnation of Japanese joint ventures indicates that they failed to adapt to the low-end market, as a result of bringing into China a system almost identical to that in Japan. At the same time, the study demonstrates that the supplier system of Chinese makers is also changing toward one with greater discipline in response to the upgrading of the market and demand in recent years.

### 2. Minor-Change Competition among Numerous and Homogeneous Competitors

In analyzing the process of technological capability building, this study focuses on the product development process. This is because it is widely recognized that the challenge of industrial development in East Asian countries, including China, de-

pends not only upon the production of technologically mature products and growth through investment, but also upon whether or not they are capable of improving the product quality and conducting more technologically innovative activities (Yusuf et al. 2003).

By the mid-1990s, many researchers assumed that firms in late-industrializing economies would upgrade their capability from the absorption of transferred production technologies to technological development of their own, and from imitation to innovation, thereby eventually catching up with the developed economies (Hobday 1995, p. 194; Kim 1997, pp. 11–13). In reality, however, even many renowned companies in Taiwan and Korea still remain in a phase where they exert their advantage through the adaptive engineering of mature products developed by the firms of developed economies (Yun 2003, p. 31). We may well conclude that there is some kind of qualitative difference in the way that industry developed between the developed countries and latecomers such as the NIEs and China, with the former developing totally new technologies in various industries and launching new product cycles (Utterback and Abernathy 1975, pp. 641–42; Utterback and Suarez 1993, pp. 2–3.), and the latter achieving rapid development solely by learning from the products and manufacturing technologies that matured and were standardized in the developed countries, without making "proprietary innovations" (Amsden 2001, p. 2; Ernst, Mytelka, and Ganiatsos 1998, pp. 17–23).

This study focuses on the factors that make it particularly difficult for China to catch up technologically with companies in the developed countries. It defines the product development conducted in actuality by most Chinese firms as "minor-change-type product development," and discusses why this method was adopted and became widespread in view of the process of building technological capabilities, and why it is likely to continue (i.e., the reason there will be no easy shift to a major-change type). At least in the 1990s, this study assumes, Chinese makers, which had very limited firm-specific technological knowledge, carried out product development by actively utilizing standardized external technologies, mainly in the form of purchased parts, and by adding some minor differentiation to the existing dominant model. Since they faced many homogeneous competitors in the same platform, they were reluctant to commit themselves to supplier development. At the same time, due to the existence of many homogeneous transaction partners, both makers and suppliers found little necessity to stick to fixed business relations. Because of these factors, makers could not fully draw out the commitment of suppliers and they did not work in close collaboration with them. This in turn may have led to delays in obtaining and accumulating a broad range of technological knowledge concerning products as a whole as required for quality improvement and a major-change type of product development.

## IV. Composition and Summary of the Study

The structure of the book is as follows: Chapter 1 provides the analytical framework for classifying and examining change in the supplier system. It illustrates the fact that

the system can be divided, by type of mechanism for risk sharing and promotion of capability upgrading, between isolated-type and united-type supplier system, and presents an assumption that in present-day China, the system is likely to be inclined toward an isolated-type system. Chapter 2 gives an overview of the competitive environment surrounding motorcycles, with a focus on demand and market aspects as described earlier. In particular, attention is drawn to new changes that have taken place since 2000. Chapter 3, while confirming the difference in the technology-building process in the motorcycle industry between Japan and China, concretely describes the nature of "minor-change-type development" which has become common in China. Chapter 4 reveals, by presenting detailed factual evidence in comparison with Japan, the distinctive features of the mal-disciplined isolated-type system in the latter half of the 1990s, in which risk shifting was rampant. Chapter 5 analyzes, through detailed case studies of three makers, how the system was transformed to an isolated type from the 1980s to 1990s, shedding light on the fact that individual firms face a diverse reality. The case studies show that a united-type system once existed in China, and that immature market institutions were in place that facilitated the prevalence of mal-disciplined transactions, whereas private firms established a system that placed importance on mutual trust. Chapter 6 confirms the fact that the product-development capability of makers and suppliers has been upgraded since 2000, while revealing that the discipline of the interfirm transaction system has been strengthened accordingly. The Conclusion, by further discussing the points of contention on the characteristics of the industrial development process in present China, summarizes the study as a whole.

At this point, it is worth mentioning how I proceeded with this study. The research was originally triggered by the discovery, in a survey carried out toward the end of the 1990s which became the basis of Chapter 4, that the transaction system in China's motorcycle industry was very different from that in Japan. In order to clarify the reasons for the difference, I devised a framework to analyze the system (Chapter 1), examined the competitive environment and technological capability as well as the actual state of product development of the industry (Chapters 2 and 3), confirmed its past status and its changes (Chapter 5), and examined the changes since 2000, offering prospects for the future (Chapter 6). Readers, before delving into the other chapters, are advised to read Chapter 4, which may be helpful in grasping a concrete image of the characteristics of the Chinese interfirm organization and can give a better understanding of the overall contents of the book.

## V. Firms Surveyed

This study mainly focuses on the supplier systems of three representative Chinese motorcycle makers—China Jialing Industrial Co., Ltd. (hereafter Jialing), China Qingqi Group Co., Ltd. (hereafter Qingqi), and Chongqing Zongshen Motorcycle Group (hereafter Zongshen)—as well as Japan's Honda Motor Co., Ltd. (hereafter Honda) and Yamaha Motor Co., Ltd. (hereafter Yamaha).

The data used in this study are from interviews conducted by the author during a first field survey in China from 1998 to the beginning of 1999, a second survey in 2001–3, a supplementary survey in 2004, and a survey of Japanese firms implemented in Japan from 1999 to 2004.

The first field survey targeted twelve makers and twenty-six suppliers with business relationships with the makers. The majority of the suppliers are first-tier suppliers that manufacture important functional parts linked to the engine, driving, control, and electrical systems. To examine the suppliers of the three makers, a total of eighteen suppliers were surveyed including seven of Jialing (among them, one has a capital relationship with the maker and five, though not having any capital relationship, were once members of the Jialing Motorcycle Economic Complex), five of Qingqi (of which three have capital relationships), and six of Zongshen (of which five are affiliated with the Zongshen Group, though without capital affiliation).

The aim of the second field survey was to observe changes during the four to five years from the end of the 1990s to around 2003. As for the major suppliers of the three Chinese makers, whenever possible I visited the same suppliers covered in the first field survey. However, I was not able to revisit some of them (four of Jialing's suppliers and one of Zongshen's), and additional suppliers (four of Jialing's and two of Zongshen's) were newly visited. Also, in order to examine the reorganization of Japanese joint-venture (JV) firms, Honda's JV makers and six Japanese JV suppliers were newly added.[2] An outline of the surveyed firms is presented in Appendix.

## Notes

1 Well-known is Amsden (1977, 1985). She found that the type of capability developed and speed of the productivity improvement in Taiwan's machine tool manufacturers during the 1970s were primarily determined, not by the technical or managerial conditions, but by the nature of the demand and the way it changed.

2 Furthermore, with a view to understanding the situation outside China, interviews of indigenous firms and Japanese JV firms in the motorcycle industry were implemented in Taiwan, India, Thailand, Vietnam, and Indonesia in the summer and fall of 2004.